

REMARKS**1. Status of Application**

This application is a division of application Ser. No. 09/908,414 filed July 18, 2001, now U.S. Patent No. 6,602,452, issued August 5, 2003.

This application includes pending claims 1-5, 21 and 22. Claims 1-5, 21 and 22 were rejected in an Office Action mailed on December 16, 2004. Claims 1-3, 5, and 21 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,439,079 to McDowell ("McDowell"). Claims 1, 2, 4 and 5 have been rejected under U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,110,389 to Giehler et al. ("Giehler"). Claims 1, 2, and 5 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,356,589 to Sugalski ("Sugalski"). Claims 1, 3, and 5 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,156,818 to Manchak, Jr. et al. ("Manchak").

Claim 4 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over McDowell. Claims 3, and 21-22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over any one of McDowell, Giehler, Sugalski, U.S. Patent No. 4,146,565 to Quraishi ("Quraishi"), and U.S. Patent No. 5,035,601 to Lin ("Lin"), in view of either U.S. Patent No. 4,836,963 to Gilman ("Gilman") or U.S. Patent 3,652,368 to Formo ("Formo").

By this response, claims 1 and 21 are amended, claims 3 and 22 are cancelled and claims 39-46 are added.

2. Amendment to Specification

The specification has been amended to reflect the issuance of patent application ser. No. 09/908,414 as U.S. Patent No. 6,602,452 on August 5, 2003.

3. Amendments to Claims

Claim 1 has been amended to reflect a material feed path fluidly connected to the interior cavity of the mold and the exterior of the mold and to emphasize a vent path extending into the interior of the mold cavity that is fluidly connected to both a vacuum path and a solvent removal path. Further, claims 2 and 5 are dependent on claim 1 and claim 3 has been cancelled. Support for these amendments may be found, for example, in Figures 1-3, page 6, line 26, page 7, lines 5-6, and page 10, lines 17-21.

Claim 21 has been amended to reflect that the means for inserting molding material into the mold is fluidly connected to both an interior of the mold and to the exterior of the mold. Claim 21 was also amended to emphasize that the means for supplying a vacuum path and a solvent removal path are both fluidly connected to a vent path that extends into the cavity of the mold. Support for these amendments may be found, for example, in Figures 1-3, page 6, line 26, page 7, lines 5-6, and page 10, lines 17-21.

New claims 39 and 43 are added to recite that the vent path has a lip at its interior end. Support for these amendments may be found, for example, in Figures 1-3 and page 8, lines 9-12.

New claims 40 and 44 are added to recite that the solvent removal path or solvent removal means can be a solvent collection path or solvent collection means, respectively. Support for these amendments may be found, for example, in Figure 1 and page 3, lines 13-20.

New claims 41 and 45 are added to recite that the solvent collection path or solvent collection means can be a solvent condenser path or solvent condenser means, respectively. Support for these amendments may be found, for example, in Figure 1 and page 3, lines 13-20.

New claims 42 and 46 are added to recite that the vacuum path and solvent removal path can be the same path. Support for these amendments may be found, for example, in Figures 1-3 and page 7, lines 5-6.

4. Claim Rejections – 35 U.S.C. § 102(b)

a. McDowell

The Examiner rejected claims 1-3, 5, and 21 under 35 U.S.C. § 102(b) as being anticipated by McDowell. The Examiner stated that McDowell “includes a means for inserting a molding material into the mold, such that the mold inherently includes a sprue opening fluidly connected to the interior of the mold, since the mold is capable of being charged automatically (col. 2, line 64).” McDowell, however, does not teach or suggest a molding material feed path that is fluidly connected to the interior of the mold and also connected to a molding material source that is exterior to the mold.

The claimed invention, as amended, also has a “vent path” (sprue opening 24) that extends into the cavity of the mold where the path is fluidly connected to both a vacuum path and a solvent removal path. McDowell teaches only a vacuum path (38) that is connected to the mold and not a vacuum path and solvent removal path that are both fluidly connected to the mold. *See* McDowell at Fig. 1. McDowell thus does not anticipate the amended claims and does not provide any motivation to include the newly-added features of the amended claims to the disclosed apparatus. The Applicant respectfully submits that the amended claims are now patentable over McDowell or any combination that includes McDowell.

b. Giehler

The Examiner rejected claims 1, 2, 4 and 5 under U.S.C. § 102(b) as being anticipated by Giehler. The Examiner stated that Giehler “teach[es] a system comprising a multiaxis rotational molding machine, and a two-piece mold 1a, 1b matable to form a vacuum-tight seal along mating surfaces (with means to apply a vacuum to the mold cavity), the mold being mounted to the rotational molding machine, at least one of the mold pieces having a hemispherical shaped cavity, wherein the interior of the mold is “sized to allow for the thickness of a line” as claimed in claim 5” Giehler, however, does not teach a vent path fluidly connected to the mold that extends into the cavity of the mold with a vacuum path and solvent removal path connected to the extended sprue opening, as recited in the amended claims.

Giehler achieves a vacuum connecting the “housing or chamber (4) to any suitable generator of reduced pressure.” *See* Giehler et al. at col. 5, lines 28-31; Fig. 1. However, the housing or chamber (4) does not extend into the cavity of the mold as does the vent path (sprue opening 24) in the claimed invention. *Id.* at col. 4, lines 21-25; Fig. 1. Further, Giehler does not teach a solvent condensing path to remove gases or solvents from the cavity. Giehler thus does not anticipate the amended claims and does not provide any motivation to include the newly-added features of the amended claims to the disclosed apparatus. Applicant respectfully submits that the amended claims are patentable over Giehler or any combination that includes Giehler.

Applicant also notes that Giehler only addresses the problem of volatile gas buildup by the introduction of protective gas into the mold after the vacuum is released. *Id.* at col. 5, lines 13-23.

c. Sugalski

The Examiner rejected claims 1, 2, and 5 under 35 U.S.C. § 102(b) as being anticipated by Sugalski. The Examiner stated that “Sugalski clearly teaches a system comprising a multiaxis rotational molding machine, and a multi-piece mold 32, 38, 40 matable to form a vacuum-tight seal along mating surfaces (with means to apply a vacuum to the mold of the cavity, col. 4 line 2), the mold being mounted to the rotational molding machine, wherein the interior of the mold is “sized to allow for the thickness of a liner” as claimed in claim 5 . . .” Sugalski, however, does not teach or suggest a molding material feed path that is fluidly connected to the interior of the mold and also connected to a molding material source that is exterior to the mold.

Further, Sugalski suggests that the apparatus may achieve a vacuum by having a “cap (74) [which] may be provided with a centrally located nipple (90) which in turn may be provided with a tube (92) for venting the interior of the mold during rotational casting or for applying a vacuum thereto.” *See* Sugalski cols. 3-4, lines 66-2; Fig. 2. Sugalski, however, does not teach or suggest a vacuum path and solvent removal path that are both fluidly connected to the mold. Sugalski thus does not anticipate the amended claims and does not provide any motivation to include the newly-added features of the amended claims to the disclosed apparatus. Applicant respectfully submits that the amended claims are patentable over Sugalski or any combination that includes Sugalski.

d. Manchak

The Examiner rejected claims 1, 3, and 5 under 35 U.S.C. § 102(b) as being anticipated by Manchak. The Examiner stated that Manchak “teach[es] a system comprising a biaxial rotational molding machine, a two-piece mold 26, 28 mounted to the rotational molding machine, and a sprue opening fluidly connected to the mold interior (col. 5, lines 39-37; col. 7,

lines 63-68), wherein the interior of the mold is “sized to allow for the thickness of a liner: as claimed in claim 5 . . .” Manchak, however, does not teach a vent path fluidly connected to the mold that extends into the cavity of the mold with a vacuum path and solvent removal path connected to the extended sprue opening. Nor does Manchak teach or suggest of applying any vacuum to the mold cavity. Manchak thus does not anticipate the amended claims and does not provide any motivation to include the newly-added features of the amended claims to the disclosed apparatus. Applicant respectfully submits that the amended claims are patentable over Manchak or any combination that includes Manchak.

5. Claim Rejections – 35 U.S.C. § 103

a. Claim 4

Claim 4 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over McDowell. Claim 4 is dependent on Claim 1. As noted above, amended claim 1 is not anticipated by McDowell. McDowell fails to anticipate or make obvious the apparatus as disclosed in the amended claims, including a molding material feed path that is fluidly connected to the interior of the mold and also connected to a molding material source that is exterior to the mold and a “vent path” (sprue opening 24) that extends into the cavity of the mold where the path is fluidly connected to both a vacuum path and a solvent removal path.

b. Claims 3, 21-22

Claims 3, and 21-22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over any one of McDowell, Giehler, Sugalski, Quraishi, and Lin, in view of either Gilman or Formo.

As noted above, neither McDowell, Giehler, or Sugalski include both a vacuum path and a solvent condensing path, as recited by the amended claims, nor do these references provide any

teaching or suggestion that would motivate a person of ordinary skill in the art to modify the disclosed systems to include these recited features.

Similarly, Quraishi suggests only that “[s]uitable means (not shown) . . . for selectively connecting the mold interior to atmosphere and pressure (or vacuum) . . . may be provided through suitable rotating joints” and does not suggest that a solvent removal path would be fluidly connected to the mold. *See* Quraishi at col. 4, lines 51-56. In addition, Lin teaches an airpipe (7) which is connected to a T-union (72) to communicate with two sets of mold seats (8) which forms a vacuum path but not a solvent condensing path. *See* Lin at col. 2, line 37-43; col. 3, lines 9-14. Quraishi and Lin do not provide any teaching or suggestion that would motivate a person of ordinary skill in the art to add the features of the amended claims to the systems disclosed in those references.

Applicant also points out that neither Gilman nor Formo provide any teaching or suggestion to include the vacuum path and solvent removal path recited in the amended claims. Rather, Gilman and Formo are concerned with other features of biaxial molding systems.

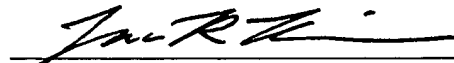
Accordingly, the Applicant submits that each of the amended claims are patentable over the cited prior art references individually or any combination of those references, because a person of ordinary skill in the art would not have been motivated to modify the systems disclosed in these references to create a system having the features of the amended claims.

6. Conclusion

It is respectfully submitted that the present application as amended is in condition for allowance and prompt notification thereof is requested. If the prosecution of this application can be advanced by a telephone conference, the Examiner is requested to call the undersigned at (212) 530-5363.

Respectfully submitted,

Dated: June 16, 2005



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